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COMMENTARY

Qualitative research in CALL

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Introduction

The goal of this special issue is to present arguments and examples relating to the use of qualitative research in computer-assisted language learning (CALL). Why should the CALL domain be one where qualitative research methods and approaches have current relevance, and what is it specifically about the qualitative orientation that we believe is useful and even necessary to motivate and inform research studies both now and in the years ahead? These questions are complex and multifaceted.

To approach an answer, we believe we need to think large and small—in other words, to be receptive to the broader contexts in which technology is employed for language learning, as well as to be keenly aware of the sub-components or elements of a CALL activity or task and the many options and decisions that learners confront on the path to completion. In this brief commentary, we argue that there are essentially two features of CALL as a research domain that lend themselves to qualitative approaches. We present these as objectives for qualitative research in CALL:

1. To help clarify and detail the contextual factors—from macro to micro—that impact upon the success (or otherwise) of CALL implementations
2. To inform the design, development, and evaluation of new CALL artefacts (language learning apps, software, learning systems, CALL tasks) through a deeper understanding of the user's perspective and the dynamic, moment-by-moment processes of CALL task completion (Levy, 2015; Levy & Caws, 2016)

CALL in Context

The notion of context in CALL is a challenging one because a context may not only be defined and circumscribed at many levels; elements that derive from one or more of these levels may have a critical effect on the success or otherwise of any CALL implementation. By *level*, we mean the contextual frame and how its elements are brought to bear in a research study. This frame may be as large as a country or the teaching of a language (see Ward, in this issue) or as small as a CALL task, activity, or help function. CALL contexts may be circumscribed in numerous ways including a country; a language; an institution; a class; an app, website, or piece of software; a new pedagogy; or a CALL task or activity.

Contextual parameters help shape the practice of CALL in a particular setting. On a large scale, in Vietnam, for example, recently implemented technology standards for language teachers are exerting a profound impact, especially under the direction of the National Foreign Language 2020 Project (see Nguyen, 2018). A new organization, VietCALL, was established in 2014 with the plan of playing a major role in implementing the standards. Nguyen's (2018) research identified the need for an integrated top-down and bottom-up approach involving all key stakeholders, from the Ministry of Education and Training to institutional leaders and classroom teachers.

In contrast, Chambers and Bax (2006) conducted a qualitative research study at the level of the institution—comparing two sites, a university language centre, and a government-funded college—to identify and

discuss obstacles to normalisation. Besides the technology and software, obstacles included teacher training, administrative and pedagogical support, syllabus and curriculum integration, teacher attitudes, school culture, physical setting and location of computers, funding, leadership, and accountability structures. Memorably, the authors identified syllabus integration as one overriding factor; in contrast, Fishman, Marx, Blumenfeld, Krajcik, and Soloway (2004) identified time constraints on teachers as a direct result of the impact of standardised assessment to be the main hurdle (p. 60).

Clearly, numerous contextual factors come into play in any CALL implementation. The problem is perhaps that even though one or more of these factors may determine the success or otherwise of a CALL initiative, they are often forgotten or overlooked. One thinks of initiatives such as the tablet for every child in a class or school, where teacher education, curriculum renewal, and technical support, let alone socioeconomic considerations, are forgotten. Cumulatively, qualitative research studies that focus on different contexts can potentially help the CALL community avoid common pitfalls and plan new implementations in a much more informed manner.

CALL Design, Development, and Evaluation

A recurring objective in CALL is to inform the design, development, and evaluation of new CALL artefacts (e.g., language learning apps, software, learning systems, CALL tasks). Qualitative research has two features that make it highly valuable to CALL: first, its capacity to provide the tools to generate highly detailed data on moment-by-moment processes of CALL task completion (what students do); and second, its capacity to provide an emic perspective on such data.

An interest in moment-by-moment processes in language teaching and learning can be traced back at least to the work of Richards and Rodgers (1986). In their articulation of the elements and sub-elements that constitute a language teaching method, they describe a model that distinguishes between the *design level* and the *procedure level*. Though such discussions of method have been challenged, this distinction between design and procedure remains critical both in language teaching and learning more widely and in CALL. The design–procedure distinction captures the difference between a plan and its implementation in actual practice. It separates a relatively static model from one that is dynamic and subject to change, moment-by-moment. To use the words of Richards and Rodgers, the procedure level "encompasses the actual moment-to-moment techniques, practices, and behaviours" (p. 26). Such a distinction is also captured by Breen's (1989, p. 188) distinction between *task-as-workplan* and *task-in-process*, which has been used to identify two potentially complementary strands in research into language learning tasks: one focusing on the effects of task design and implementation features on task outcomes, and the other focusing on how learners interpret tasks and (inter)act in task-based activity to create their own learning opportunities (see Moore, 2018). The point here is that, in and of itself, task design is a starting point for learning—a perfectly designed task cannot be seen as a closed system where learners follow a pre-ordained path to completion and learning as interpreted by the task designer.

In CALL, the design–procedure distinction is, in part, reflected in Chapelle's (2001, pp. 58, 66) well-known distinction between judgmental and empirical evaluation. As Chapelle notes, citing Hosenfeld (1976, p. 123), "students are often doing something very different from what [language teachers] assume they are doing." Consider how this insight has been amplified in recent times with mobile phones and numerous other technologies present in the language classroom. It's what students do, and where their attention is directed, moment-by-moment, that matters for learning and design. Qualitative research can be made to operate very effectively at this level through the use of data collection techniques that record precisely the timing and sequencing of events, such as conversation analysis (CA) and visual capture methods. The data generated help inform our understandings of user behaviour and actions as they work through a process.

Procedural elements are extremely important in CALL, or in any technology-mediated learning environment, because at any single moment in time, the learner is confronted with a multitude of options (e.g., pull-down menu items, help, hypertext reading, incoming email and text messages, etc.). What action

the learner chooses to take at a particular time and why are of paramount interest. For the designer or developer, such understandings lead to more informed decisions on options provided (or not) to the learner at any particular point within the progression of the completion of a learning task.

The importance of understanding moment-by-moment processes is a key factor in understanding how CALL works or, more accurately, how any sub-component might work in a program or app. O'Rourke (2008, 2012) highlights the value of collecting attentional focus data moment-by-moment in an online interaction and analysing interactional tempo data related to online turn-taking. Here, qualitative research can help further our understanding of the ways in which the technology mediates an interaction and thereby learning online.

By way of example, consider what we understand by a *transcript* of an interaction. In face-to-face (FtF), co-located interaction, creating a transcript of a conversation is comparatively straightforward. The researcher records the conversation and then, using a suitable transcription coding system, translates the conversation into a coded text for analysis. Research in CALL has shown that computer-mediated interactions are far more involved.

Take, for example, a collaborative synchronous exchange that involves just two individuals. Unlike FtF CA descriptions, overlaps online using a shared timeline are technically difficult to record because each individual may make repeated revisions in their textbox before actually hitting Enter and posting an utterance where it is then seen for the first time by the other. Contrast this with regular, co-located conversations where self-corrections and false-starts are vocalised and available to all in real time. So-called output and input may be entirely different in a mediated context, where the output visible to an interlocutor may only represent a portion of actual output. The time-scale and the sequencing of input and output may be distorted too. As Smith (2008) notably observed, tracking the final output, as posted, misses the self-motivated corrections and edits in the text box before posting. Smith's subtitle, *The case of the missing self-repair*, was prescient. It is what can be missed or altered in the collection and analysis of CMC data that may challenge the validity of the assumption that face-to-face, co-located study data and results can be transferred without complication from one context to the other. In our view, the default position should be that co-located, face-to-face contexts and technology-mediated contexts are distinct and different until proven otherwise, not the reverse.

These micro-processes may be captured and interpreted from the outsider's (etic) perspective, so to speak, or from the insider's (emic) perspective. With the former, highly detailed descriptive techniques may be employed, such as CA, video capture, or close observation. With the latter, interviews, stimulated recalls, and verbal and think aloud protocols are some data collection methods that may be employed. The insider's (emic) point of view is central to a qualitative approach to research, and a wide variety of tools and techniques are available. In CALL research, most of these techniques and methods have been employed, some with a domain-specific variation. One such method, drawing on think aloud methods, is the *user walkthrough*: "The user walkthrough method … is primarily an evaluation technique designed to focus on the learnability and usability of a system … [V]aluable qualitative data could be obtained from the students' comments related to the interface, their own interaction, and exploratory learning' (Hémard & Cushion, 2001, p. 21). Hémard and Cushion add that the user walkthrough also facilitates "greater insight into the students' learning experience" (p. 21).

Given the dynamic and emergent nature of CALL technologies, contexts, and interactions, much of the qualitative research in CALL (including the studies presented in this issue) is exploratory in nature. With researchers uncovering emergent phenomena relevant to language learning, there is a need for creativity in incorporating new concepts into our existing understanding of how language learning is mediated by and through technologies. Krathwohl (1993) outlines the value of such *creative description* in qualitative research:

> [Creative description] incorporates creativity first in perceiving important aspects of a situation missed by others and second in organizing and presenting that perception so richly and vividly that

> it comes alive in the theatre of the mind. Such description can make the obscure understandable and very real. (pp. 5–6)

The articles in this special issue provide emic insights into the learner's experience of CALL, as well as implications for design, implementation, and evaluation in contexts ranging from moment-by-moment task-based interaction, to course-level support for learning, to considerations of the contribution of such qualitative research to the broader field of CALL inquiry.

In the article by Wang and Qi (in this issue), the focus of the research is on design and evaluation; in this case, focusing upon a learning support network being used to underpin a flipped classroom for a course in Chinese for beginners. The flipped classroom scenario immediately introduces a context for technology use that is somewhat different from the norm. Typically, in this setting, the researcher is interested in how out-of-class work is coordinated with in-class work, together with such issues as the creation and distribution of learning materials and the effective integration of work across the two domains. Technology use introduces a further level of complexity. Qualitative research can provide mechanisms for the collection of data that can provide insights into the transition, especially in learning more about the learner experience as it relates to out-of-class work. Specifically, Wang and Qi propose and evaluate a three-pronged learning support framework (cognitive, affective, and learning strategy support).

Design and evaluation have been fundamental to CALL since its inception, so the research design in this study has broader application to contexts where the sub-components of CALL design need to be evaluated and tested. Course data collected via screen-shot captures of the learning support mechanisms, a survey for students, and reflective journals of teachers together provide a strategy for CALL evaluation and triangulation of data.

Qualitative research can be brought to bear on the workings of sub-components or elements in a learning system. Thus, rather than viewing a new system or approach as an undifferentiated whole with research focusing upon final outputs, the research can be designed to attend to smaller elements. In the learning support system proposed by Wang and Qi (in this issue), this attention might be directed toward the pre-recorded mini-lectures or the character-writing component. The focus on process has the capacity to provide insights into what works effectively and what does not at the component level, or regarding discrete activities that are part of a larger system. The fact that the evaluation process is iterative illustrates the step-wise progression through a number of cycles with the goal of small improvements incrementally.

Computer-mediated communication (CMC) has been well-researched in the CALL domain, especially in the guise of telecollaboration and intercultural exchanges for language learning. Both the synchronous and asynchronous forms have been well-researched. In both forms of CMC, qualitative approaches have proven beneficial (exemplified by the recent special issue in *System*, edited by Lewis, 2017), especially in revealing what had previously been hidden, as in Smith's (2008) study cited above. This promising line of research has been extended through studies using eye-tracking and other methodologies to investigate interaction from both interactionist SLA (e.g., Smith, 2012) and sociocultural perspectives (e.g., Stickler & Shi, 2017).

Wu (in this issue) reports on a naturalistic study of intercultural, asynchronous CMC. His research focuses on describing collaborative exchanges between four Chinese participants and their American counterparts. Aside from the natural setting, what highlights the study's qualitative orientation is its focus on process and the use of moment-by-moment analytical techniques. Data sources include forum posts, reflective essays, and retrospective interviews.

Positioning theory and dynamic systems theory provide the theoretical framework for the study. These two perspectives together emphasise the dynamic, fluid and ephemeral nature of the interaction and the ways in which the two interlocutors position themselves repeatedly during the course of an exchange. Such a view emphasises "the contested nature of interaction", and the theory provides a means "to reveal the moment-by-moment dynamics in intercultural CMC" (Wu, in this issue, p. 76). The transcript excerpts give examples of aligned, partially aligned and misaligned exchanges.

Qualitative research provides the tools for deep description of a process as it unfolds. Where circumstances are fluid, unpredictable at the outset, and emergent (as in an online interaction across cultures), qualitative approaches and techniques can help identify the forces that shape an interaction as it is actually occurring.

CA "attempts to uncover the systematic properties of sequential organisation of talk" (Lazaraton, 2002, p. 29). Using naturalistic samples of spoken language, conversation analysts prefer a discursive, interpretative type of analysis. CA methods have also been applied to online interactions. Although there are significant differences between co-located FtF interactions and computer-mediated interactions, transcription systems and conventions may also be extended to account for the technology (see Helm & Dooly, 2017; Levy & Gardner, 2012).

In his study, Balaman (in this issue) sets out to describe processes that contribute to design elements in a CALL task. The task is not viewed as an indivisible whole where learners are assumed to more or less follow a fixed, pre-determined track through the task in order to arrive at final outcomes. Instead, the task completion process is considered more as a dynamic environment. His goal is to describe what he calls *situated accomplishments*, rather than task outcomes.

More specifically, Balaman (in this issue) looks at the development of hinting behaviours for L2 learners engaged collaboratively in online tasks. Balaman refers to the interactional unfolding of task completion and recognises its dynamic nature. The use of screen-recorded interactions transcribed using CA conventions reflects this view, and he concludes that these behaviours would have remained hidden if not for the qualitative research orientation and a focus on elements in a moment-by-moment process—as mentioned above with Wu (in this issue). Again, qualitative research methods provide a way into describing the minutiae of a sequence or process.

By far, the majority of research studies in CALL reported in the literature have been conducted with English (EFL and ESL) in mind, followed by other major world languages (for a review of SCMC telecollaboration, see Akiyama & Cunningham, 2018). It is easy to forget that not all language-learning settings involve English or a major world language. Moreover, the majority of studies reported have also been conducted in contexts where the technological infrastructure is relatively easily accessible and stable. Again, we may forget that many teachers and students are not working under such conditions (Ortega, 2017). While some serious efforts have been made to redress the latter (e.g., the edited work by Egbert, 2010, looking at CALL in limited-technology contexts and where insider perspectives are highlighted), the majority assume the norm of technological resources that are easily accessible and reliable.

Qualitative research often comes into play when the research is more exploratory, where the contextual variables are unknown or less well understood, and where the setting in which the technology is employed is less predictable. As far as the use of CALL is concerned, the setting may be one in which CALL is being used for the very first time. As such, it is unclear what factors may arise that influence acceptance and success. Such is the situation with Ward's article (in this issue) that looks at the use of technology with three endangered and minority languages. Her key research questions reflect the parameters of the context and issues arising: (1) Is the CALL resource useful? (2) Does it increase motivation? (3) Is it usable by the target group? The importance of learners' perceptions and a full, detailed account of the insider perspective are critical for acceptance and use. The settings are natural, and Ward refers to data sets such as self-recorded family talk, daily logs, interviews, and videos. Here again, it is qualitative data that can provide the information and perspective required.

Conclusion

The collection of articles presented here illustrates the range and potential contribution of qualitative research to our understanding of the nature of second language learning in technology-mediated contexts. The data generated from such studies are rich and often described in intricate detail using an emerging array of tools and conventions. Such data may lead to a more precise description of an aspect of an interaction or a particular pattern of behaviour, or even to the discovery of a phenomenon that is entirely new. This should

not be surprising when investigating innovative mediated environments that are constantly pushing the boundaries of how human beings interact, communicate, and learn. While the research studies reported here go some way in establishing a clearer role for qualitative research in CALL—as did the Stickler and Hampel (2015) special issue of *CALICO Journal*—we feel the challenge remains. We hope this special issue inspires further research that aims to draw together emerging technologies, micro-level analysis and interpretation, and broader questions of CALL design, implementation, and evaluation in domain-specific contexts.

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References

Akiyama, Y., & Cunningham, J. D. (2018). Synthesizing the practice of SCMC-based telecollaboration: A scoping review. *CALICO Journal*, 35(1), 30–48. https://doi.org/10.1558/cj.33156

Breen, M. (1989). The evaluation cycle for language learning tasks. In R. Johnson (Ed.), *The second language curriculum* (pp. 187–206). Cambridge, UK: Cambridge University Press.

Chambers, A., & Bax, S. (2006). Making CALL work: Towards normalization. *System*, *34*, 465-479. https://doi.org/10.1016/j.system.2006.08.001

Chapelle, C. (2001). *Computer applications in second language acquisition: Foundations for teaching, testing, and research*. Cambridge, UK: Cambridge University Press.

Egbert, J. (2010). *CALL in limited technology contexts. CALICO Monograph Series. Volume 9*. San Marcos, TX: CALICO.

Fishman, B., Marx, R. W., Blumenfeld, P., Krajcik, J., & Soloway, E. (2004). Creating a framework for research on systemic technology innovations. *Journal of the Learning Sciences*, *13*(1), 43–76. Retrieved from http://www.umich.edu/~hiceweb/downloads/JLS13_1_pp43_76.pdf

Helm, F., & Dooly, M. (2017). Challenges in transcribing multimodal data: A case study. *Language Learning & Technology*, *21*(1), 166-185.

Hémard, D., & Cushion, S. (2001). Evaluation of a web-based language learning environment: The importance of a user-centred design approach for CALL. *ReCALL*, *13*(1), 15–31. https://doi.org/10.1017/S0958344001000313

Hosenfeld, C. (1976). Learning about learning: Discovering our students' strategies. *Foreign Language Annals*, *9*, 117–129.

Krathwohl, D. R. (1993). *Methods of educational and social science research: An integrated approach*. New York, NY: Longman.

Lazaraton, A. (2002). *A qualitative approach to the validation of oral language tests*. Cambridge, UK: Cambridge University Press.

Levy, M. (2015). The role of qualitative approaches to research in CALL contexts: Closing in on the learner's experience. *CALICO Journal*, *32*(3), 554–568. https://doi.org/10.1558/cj.v32i3.26620

Levy, M., & Caws, C. (2016). CALL design and research: Taking a micro and macro view. In C. Caws & M.-J. Hamel (Eds.), *Learner computer interactions: New insights on CALL theories and applications* (pp. 89–113). Amsterdam, Netherlands: John Benjamins.

Levy, M., & Gardner, R. (2012). Liminality in multitasking: Where talk and task collide in computer collaborations. *Language in Society*, *41*(5), 557–587. https://doi.org/10.1017/S0047404512000656

Lewis, T. (2017). Introduction to System special issue on telecollaboration. *System*, *64*, 1–6. https://doi.org/10.1016/j.system.2017.01.007

Moore, P. J. (2018). Task-based language teaching (TBLT). In J. I. Liontas (Ed.), *The TESOL encyclopedia of English language teaching* (pp. 1–7). Hoboken, NJ: Wiley-Blackwell. https://doi.org/10.1002/9781118784235.eelt0175

Nguyen, T. T. N. (2018). *Evaluating an educational innovation: Professional development in CALL at the tertiary level in Vietnam* (Unpublished doctoral dissertation). Brisbane, Australia, University of Queensland.

O'Rourke, B. (2008). The other C in CMC: What alternative data sources can tell us about text-based synchronous computer-mediated communication and language learning. *Computer Assisted Language Learning*, *21*(3), 227–251. https://doi.org/10.1080/09588220802090253

O'Rourke, B. (2012). Using eye-tracking to investigate gaze behavior in synchronous computer-mediated communication for language learning. In M. Dooly & R. O'Dowd (Eds.), *Researching online foreign language interaction and exchange: Theories, methods, and challenges* (pp. 305–341). Bern, Switzerland: Peter Lang.

Ortega, L. (2017). New CALL–SLA research interfaces for the 21st century: Towards equitable multilingualism. *CALICO Journal*, *34*(3), 1–32. https://doi.org/10.1558/cj.33855

Richards, J. C., & Rodgers, T. S. (1986). Approaches and methods in language teaching: A description and analysis. Cambridge, UK: Cambridge University Press.

Smith, B. (2008). Methodological hurdles in capturing CMC data: The case of the missing self-repair. *Language Learning and Technology*, *12*(1), 85–103.

Smith, B. (2012). Eye tracking as a measure of noticing: A study of explicit recasts in SCMC. *Language Learning & Technology*, *16*(3), 53–81.

Stickler, U., & Hampel, R. (2015). Qualitative research in CALL. *CALICO Journal*, *32*(3), 380–395. https://doi.org/10.1558/cj.v32i3.27737

Stickler, U., & Shi, L. (2017). Eye-tracking methodology in SCMC: A tool for empowering learning and teaching. *ReCALL*, *29*(2), 160–177. https://doi.org/10.1017/S0958344017000040

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